

AF IFW



BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES  
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Jigish D. Trivedi  
Serial No. : 08/915,658  
Filed : June 28, 2000  
Title : LOW RESISTANCE METAL SILICIDE LOCAL  
INTERCONNECTS AND METHOD OF MAKING  
Docket : MIO 0024 PA/40509.49 (97-0043)  
Examiner : Pham Long  
Art Unit : 2814

**MAIL STOP APPEAL BRIEF-PATENTS**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on June 1, 2006.

Susan M. Luna  
Susan M. Luna Reg. No. 38,769

REPLY BRIEF

This Reply Brief is being filed pursuant to the provisions of 37 CFR 41.41(a)(1) in response to the Examiner's Answer mailed April 10, 2006. Arguments responsive to the issues raised in the Answer are set forth below. Pursuant to §41.43(a)(1), the Examiner is requested to acknowledge receipt and enter the reply brief.

Rejection of claims 31-35, 37, 41-45 and 48-49 under 35 U.S.C. 102(b) as being anticipated by Chung et al. (US 5,094,981)

In response to appellant's arguments submitted in the Appeal Brief, the Examiner has maintained that Chung et al. teach a composite structure comprising a first metal silicide (titanium silicide 38A, 38B), a second metal silicide (tungsten silicide 40A, 40B), and an intermetallic compound (36A, 36B) comprised of metal from the first metal silicide (titanium) and metal from the second metal silicide (tungsten). The Examiner further reasons that "since the claimed invention is directed to a structure it is submitted how the composite structure is formed has not been given patentable weight." However, appellant submits that the claimed **structure** is not met by Chung et al.

As appellant has repeatedly pointed out to the Examiner, Chung et al. do not teach a composite structure which contains a metal from metal silicide layer 38 as asserted by the Examiner, but rather teach that the composite contains only portions of layer 34 (titanium contact layer), layer 36 (titanium-tungsten or tungsten barrier layer), and layer 40 (interconnect layer comprising aluminum or aluminum alloy). See the last sentence of Chung's abstract and col. 5, lines 63-66.

The Examiner continues to define Chung's composite as containing the layers he chooses and contrary to Chung's disclosure. There is no teaching or suggestion in Chung et al. that their intermetallic layer 36 is formed from the metal in layer 38 and the metal in layer 40 as asserted by the Examiner. Thus, Chung et al. do not anticipate appellant's claims as they do not teach appellant's claimed composite structure, i.e., a first metal silicide, a second metal silicide, and an intermetallic compound which comprises metal from the first metal silicide and metal from the second metal silicide.

Rejection of claims 36, 38-40 and 46-47 under 35 U.S.C. 103(a) as being unpatentable over Chung et al. in view of Okamoto (US 4,910,578)

In response to appellant's arguments regarding the thickness of the composite structure, the Examiner asserts that "appellant has the burden of proving the criticality of the claimed range." However, as the Examiner has not established a prima facie case of obviousness, appellant is under no such burden. There is no suggestion or motivation in the prior art to modify the thickness of Chung's structure, and even if one were to do so, the claimed structure would not result as Chung does not teach or suggest a composite including an intermetallic compound which comprises a metal from the first refractory metal silicide and a metal from the second refractory metal silicide as claimed.

Conclusion

The claims are not anticipated by Chung et al. as Chung et al. do not teach a composite structure including an intermetallic compound comprising a metal from the first metal silicide and a metal from the second metal silicide as claimed.

Appellant further submits that the Examiner has failed to carry his burden of establishing a prima facie case for obviousness and that the references of record fail to teach or suggest the subject matter of the remaining claims on appeal.

Respectfully submitted,

DINSMORE & SHOHL LLP

By Susan M. Luna

Susan M. Luna

Registration No. 38,769

One Dayton Centre  
One South Main Street, Suite 1300  
Dayton, Ohio 45402-2023  
(937) 449-6429  
Facsimile: (937) 449-6405